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The teleutospores are very dark brown (the sori appear black), thick-walled, verrucose, the pedicels 50-65 μ long and 5-8 μ wide. Some spores are shown in fig. 6. Recorded measurements mostly from material obtained by cultures are: 28x21, 26x15, 30x17, 30x18, 29x19, 27x18, 27x21, 28x18, 30x21, 27x18, 27x20, 27x19 μ.

Explanation of Plate II. Puccinia lateripes B. & Rav. Figs. 1-3 natural size; figs. 4-6 magnified 350 diameters. Fig. 1. Portion of stem from culture plant showing sori of pycnidia and æcidia on stem and leaves. Fig. 2. Leaf with uredo and some teleuto sori, obtained by cultures. Fig. 3. Leaf with teleuto sori collected preceding year. Fig. 4. Æcidiospores obtained by cultures. Fig. 5. Uredospores obtained by cultures. Fig. 6. Teleutospores.

THE ALTERNATE FORM OF AECIDIUM HIBISCIATUM.

W. A. KELLERMAN.

An enormous quantity of the Æcidium on Hibiscus moscheutos occurring on the margins of Buckeye Lake, a reservoir eight or nine miles long, located forty miles east of Columbus, afforded good opportunity to study its teleutosporic connection. Several Rusts were likewise very abundant in the immediate vincinity of the clumps of this host. It seemed at first necessary to regard the Puccinia on Carex scoparia as the alternate of the Æcidium but that is doubtless connected with a stage on Erigeron. Then Uromyces burrillii was considered in the case though abundant in a very few places on the Reservoir margins. Cultures instituted gave only negative results, and this clue was necessarily abandoned. Next it was concluded that since Puccinia polygoni-amphibii was present and immediately adjacent to most of the clumps of the Hibiscus, it might be the missing link, but unsuccessful cultures effectually demonstrated the erroneous supposition.

Success with cultures was attained at last when the next probability was more seriously laid hold of, namely, that Puccinia muhlenbergiæ Arthur might be the teleutosporic stage in question. Host plants had been early placed in the green house, March 20, and tardily resumed active growth furnishing excellent host plants for the operations. Likewise the Rust was placed in the same congenial temperature and the pre-season experiments could then be carried on with assurance of success if the suspected connection was not improperly guessed.

Sowings were made April 24 (Exp. No. 146) on Hibiscus moscheutos using the teleutospores of Puccinia muhlenbergiæ

Arth. from Muhlenbergia mexicana. On May 5 a few spermogonia appeared and a few days later the numerous clusters became very conspicuous. Æcidia in fair numbers appeared May 15. This experiment seemed from the first appearance of the spermogonia to be conclusive, yet it was deemed best to repeat it on a larger scale. Accordingly three thrifty large plants and two transplanted somewhat later and only pushing out the shoots half an inch, the leaves not yet unfolded, were carefully inoculated (Exp. No. 161) with teleutosporic material similar to that used in the first experiment. On May 13 the spermogonia appeared and at this writing all of the leaves of the five plants inoculated are highly colored with the myriads of spermogonia and æcidia, and a few of them are partially aborted from the presence of the parasite.

Cæoma Æcidium hibisciatum was described by Schweinitz in 1834 (Trans. Am. Phil. Soc. Philadelphia, 4:239). The Puccinia in question, rather common throughout Eastern United States, was called Puccinia windsoriæ and Puccinia dochmia. Dr. Arthur has shown that these two names apply to different species of Rusts—the former designating a Puccinia that belongs to Tricuspis (Triodia), and the latter having as its host the species of Muhlenbergia. But he separated the Rust in question from Puccinia dochmia and proposed the name Puccinia muhlengergiæ Arth., Bull. Lab. Nat. Hist. State Univ. Iowa, 5:317. Oct. 1902.

It therefore becomes necessary to make a new combination as shown in the following paragraph which also recapitulates the synonomy:

PUCCINIA HIBISCIATUM (Schw.) Kellerman n. n.
Æcidium hibisciatum Schw. 1834.
Puccinia windsoriæ Burr. non Schw. 1885.
Puccinia muhlenbergiæ Arth. 1902.

OHIO FUNGI. FASCICLE VII

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List of Species and Hosts.

121. Aecidium grossulariæ (Pers.) Schm., on Ribes cynosbati L.
122. Albugo candidus (Pers.) Kuntze., on Bursa bursa-pastoris (L.) Britt.
123. Cercospora maianthemi Fckl., on Unifolium canadense (Desf.) Greene.
124. Cladosporium herbarum (Pers.) Link., on Ampelopsis tricuspidata Sieb. & Zucc.
125. Corticium oakesii B. & C., on Ostrya virginiana (Mill.) Willd.
126. Hydnum coralloides Scop., on Beech logs.